

Sequence Listing

<110> Hofmann, Kay

<120> Protease

<130> Protease Memorec

<140> US 09/869,309
<141> 2001-07-20

<150> 19902550.9
<151> 1999-01-22

<150> 19925946.1
<151> 1999-06-08

<150> 19929115.2
<151> 1999-06-24

<160> 20

<170> PatentIn Ver. 2.1

<210> 1
<211> 592
<212> PRT
<213> Homo sapiens

<400> 1
Met Ala Ala Ala Val Ala Ala Ala Leu Ala Arg Leu Leu Ala Ala Phe
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Leu Leu Leu Ala Ala Gln Val Ala Cys Glu Tyr Gly Met Val His Val
20 25 30

Val Ser Gln Ala Gly Gly Pro Glu Gly Lys Asp Tyr Cys Ile Leu Tyr
35 40 45

Asn Pro Gln Trp Ala His Leu Pro His Asp Leu Ser Lys Ala Ser Phe
50 55 60

Leu Gln Leu Arg Asn Trp Thr Ala Ser Leu Leu Cys Ser Ala Ala Asp
65 70 75 80

Leu Pro Ala Arg Gly Phe Ser Asn Gln Ile Pro Leu Val Ala Arg Gly
85 90 95

Asn Cys Thr Phe Tyr Glu Lys Val Arg Leu Ala Gln Gly Ser Gly Ala
100 105 110

Arg Gly Leu Leu Ile Val Ser Arg Glu Arg Leu Val Pro Pro Gly Gly
115 120 125

Asn Lys Thr Gln Tyr Asp Glu Ile Gly Ile Pro Val Ala Leu Leu Ser
130 135 140

Tyr Lys Asp Met Leu Asp Ile Phe Thr Arg Phe Gly Arg Thr Val Arg
145 150 155 160

Ala Ala Leu Tyr Ala Pro Lys Glu Pro Val Leu Asp Tyr Asn Met Val
165 170 175

Ile Ile Phe Ile Met Ala Val Gly Thr Val Ala Ile Gly Gly Tyr Trp

| | | |
|---|-----|-----|
| 180 | 185 | 190 |
| Ala Gly Ser Arg Asp Val Lys Lys Arg Tyr Met Lys His Lys Arg Asp | | |
| 195 | 200 | 205 |
| Asp Gly Pro Glu Lys Gln Glu Asp Glu Ala Val Asp Val Thr Pro Val | | |
| 210 | 215 | 220 |
| Met Thr Cys Val Phe Val Val Met Cys Cys Ser Met Leu Val Leu Leu | | |
| 225 | 230 | 235 |
| Tyr Tyr Phe Tyr Asp Leu Leu Val Tyr Val Val Ile Gly Ile Phe Cys | | |
| 245 | 250 | 255 |
| Leu Ala Ser Ala Thr Gly Leu Tyr Ser Cys Leu Ala Pro Cys Val Arg | | |
| 260 | 265 | 270 |
| Arg Leu Pro Phe Gly Lys Cys Arg Ile Pro Asn Asn Ser Leu Pro Tyr | | |
| 275 | 280 | 285 |
| Phe His Lys Arg Pro Gln Ala Arg Met Leu Leu Leu Ala Leu Phe Cys | | |
| 290 | 295 | 300 |
| Val Ala Val Ser Val Val Trp Gly Val Phe Arg Asn Glu Asp Gln Trp | | |
| 305 | 310 | 315 |
| Ala Trp Val Leu Gln Asp Ala Leu Gly Ile Ala Phe Cys Leu Tyr Met | | |
| 325 | 330 | 335 |
| Leu Lys Thr Ile Arg Leu Pro Thr Phe Lys Ala Cys Thr Leu Leu Leu | | |
| 340 | 345 | 350 |
| Leu Val Leu Phe Leu Tyr Asp Ile Phe Phe Val Phe Ile Thr Pro Phe | | |
| 355 | 360 | 365 |
| Leu Thr Lys Ser Gly Ser Ser Ile Met Val Glu Val Ala Thr Gly Pro | | |
| 370 | 375 | 380 |
| Ser Asp Ser Ala Thr Arg Glu Lys Leu Pro Met Val Leu Lys Val Pro | | |
| 385 | 390 | 395 |
| Arg Leu Asn Ser Ser Pro Leu Ala Leu Cys Asp Arg Pro Phe Ser Leu | | |
| 405 | 410 | 415 |
| Leu Gly Phe Gly Asp Ile Leu Val Pro Gly Leu Leu Val Ala Tyr Cys | | |
| 420 | 425 | 430 |
| His Arg Phe Asp Ile Gln Val Gln Ser Ser Arg Val Tyr Phe Val Ala | | |
| 435 | 440 | 445 |
| Cys Thr Ile Ala Tyr Gly Val Gly Leu Leu Val Thr Phe Val Ala Leu | | |
| 450 | 455 | 460 |
| Ala Leu Met Gln Arg Gly Gln Pro Ala Leu Leu Tyr Leu Val Pro Cys | | |
| 465 | 470 | 475 |
| Thr Leu Val Thr Ser Cys Ala Val Ala Leu Trp Arg Arg Glu Leu Gly | | |
| 485 | 490 | 495 |
| Val Phe Trp Thr Gly Ser Gly Phe Ala Lys Val Leu Pro Pro Ser Pro | | |
| 500 | 505 | 510 |
| Trp Ala Pro Ala Pro Ala Asp Gly Pro Gln Pro Pro Lys Asp Ser Ala | | |
| 515 | 520 | 525 |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Pro | Leu | Ser | Pro | Gln | Pro | Pro | Ser | Glu | Glu | Pro | Ala | Thr | Ser | Pro |
| 530 | | | | | | 535 | | | | | 540 | | | | |
| Trp | Pro | Ala | Glu | Gln | Ser | Pro | Lys | Ser | Arg | Thr | Ser | Glu | Glu | Met | Gly |
| 545 | | | | | | 550 | | | | 555 | | | | 560 | |
| Ala | Gly | Ala | Pro | Met | Arg | Glu | Pro | Gly | Ser | Pro | Ala | Glu | Ser | Glu | Gly |
| | | | | | | 565 | | | 570 | | | | 575 | | |
| Arg | Asp | Gln | Ala | Gln | Pro | Ser | Pro | Val | Thr | Gln | Pro | Gly | Ala | Ser | Ala |
| | | | | | | 580 | | | 585 | | | | 590 | | |

<210> 2
<211> 520
<212> PRT
<213> Homo sapiens

| | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 2 | | | | | | | | | | | | | | | |
| Met | Gly | Pro | Gln | Arg | Arg | Leu | Ser | Pro | Ala | Gly | Ala | Ala | Leu | Leu | Trp |
| 1 | | | | | | 5 | | | | 10 | | | | 15 | |
| Gly | Phe | Leu | Leu | Gln | Leu | Thr | Ala | Ala | Gln | Glu | Ala | Ile | Leu | His | Ala |
| | | | | | | 20 | | | | 25 | | | 30 | | |
| Ser | Gly | Asn | Gly | Thr | Thr | Lys | Asp | Tyr | Cys | Met | Leu | Tyr | Asn | Pro | Tyr |
| | | | | | | 35 | | | | 40 | | | 45 | | |
| Trp | Thr | Ala | Leu | Pro | Ser | Thr | Leu | Glu | Asn | Ala | Thr | Ser | Ile | Ser | Leu |
| | | | | | | 50 | | | | 55 | | | 60 | | |
| Met | Asn | Leu | Thr | Ser | Thr | Pro | Leu | Cys | Asn | Leu | Ser | Asp | Ile | Pro | Pro |
| | | | | | | 65 | | | | 70 | | | 75 | | 80 |
| Val | Gly | Ile | Lys | Ser | Lys | Ala | Val | Val | Val | Pro | Trp | Gly | Ser | Cys | His |
| | | | | | | 85 | | | | 90 | | | 95 | | |
| Phe | Leu | Glu | Lys | Ala | Arg | Ile | Ala | Gln | Lys | Gly | Gly | Ala | Glu | Ala | Met |
| | | | | | | 100 | | | | 105 | | | 110 | | |
| Leu | Val | Val | Asn | Asn | Ser | Val | Leu | Phe | Pro | Pro | Ser | Gly | Asn | Arg | Ser |
| | | | | | | 115 | | | | 120 | | | 125 | | |
| Glu | Phe | Pro | Asp | Val | Lys | Ile | Leu | Ile | Ala | Phe | Ile | Ser | Tyr | Lys | Asp |
| | | | | | | 130 | | | | 135 | | | 140 | | |
| Phe | Arg | Asp | Met | Asn | Gln | Thr | Leu | Gly | Asp | Asn | Ile | Thr | Val | Lys | Met |
| | | | | | | 145 | | | | 150 | | | 155 | | 160 |
| Tyr | Ser | Pro | Ser | Trp | Pro | Asn | Phe | Asp | Tyr | Thr | Met | Val | Val | Ile | Phe |
| | | | | | | 165 | | | | 170 | | | 175 | | |
| Val | Ile | Ala | Val | Phe | Thr | Val | Ala | Leu | Gly | Gly | Tyr | Trp | Ser | Gly | Leu |
| | | | | | | 180 | | | | 185 | | | 190 | | |
| Val | Glu | Leu | Glu | Asn | Leu | Lys | Ala | Val | Thr | Thr | Glu | Asp | Arg | Glu | Met |
| | | | | | | 195 | | | | 200 | | | 205 | | |
| Arg | Lys | Lys | Lys | Glu | Glu | Tyr | Leu | Thr | Phe | Ser | Pro | Leu | Thr | Val | Val |
| | | | | | | 210 | | | | 215 | | | 220 | | |

Ile Phe Val Val Ile Cys Cys Val Met Met Val Leu Leu Tyr Phe Phe
 225 230 235 240
 Tyr Lys Trp Leu Val Tyr Val Met Ile Ala Ile Phe Cys Ile Ala Ser
 245 250 255
 Ala Met Ser Leu Tyr Asn Cys Leu Ala Ala Leu Ile His Lys Ile Pro
 260 265 270
 Tyr Gly Gln Cys Thr Ile Ala Cys Arg Gly Lys Asn Met Glu Val Arg
 275 280 285
 Leu Ile Phe Leu Ser Gly Leu Cys Ile Ala Val Ala Val Val Trp Ala
 290 295 300
 Val Phe Arg Asn Glu Asp Arg Trp Ala Trp Ile Leu Gln Asp Ile Leu
 305 310 315 320
 Gly Ile Ala Phe Cys Leu Asn Leu Ile Lys Thr Leu Lys Leu Pro Asn
 325 330 335
 Phe Lys Ser Cys Val Ile Leu Leu Gly Leu Leu Leu Leu Tyr Asp Val
 340 345 350
 Phe Phe Val Phe Ile Thr Pro Phe Ile Thr Lys Asn Gly Glu Ser Ile
 355 360 365
 Met Val Glu Leu Ala Ala Gly Pro Phe Gly Asn Asn Glu Lys Leu Pro
 370 375 380
 Val Val Ile Arg Val Pro Lys Leu Ile Tyr Phe Ser Val Met Ser Val
 385 390 395 400
 Cys Leu Met Pro Val Ser Ile Leu Gly Phe Gly Asp Ile Ile Val Pro
 405 410 415
 Gly Leu Leu Ile Ala Tyr Cys Arg Arg Phe Asp Val Gln Thr Gly Ser
 420 425 430
 Ser Tyr Ile Tyr Tyr Val Ser Ser Thr Val Ala Tyr Ala Ile Gly Met
 435 440 445
 Ile Leu Thr Phe Val Val Leu Val Leu Met Lys Lys Gly Gln Pro Ala
 450 455 460
 Leu Leu Tyr Leu Val Pro Cys Thr Leu Ile Thr Ala Ser Val Val Ala
 465 470 475 480
 Trp Arg Arg Lys Glu Met Lys Lys Phe Trp Lys Gly Asn Ser Tyr Gln
 485 490 495
 Met Met Asp His Leu Asp Cys Ala Thr Asn Glu Glu Asn Pro Val Ile
 500 505 510
 Ser Gly Glu Gln Ile Val Gln Gln
 515 520

<210> 3
 <211> 377
 <212> PRT
 <213> Homo sapiens

<400> 3

Met Asp Ser Ala Leu Ser Asp Pro His Asn Gly Ser Ala Glu Ala Gly
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Gly Pro Thr Asn Ser Thr Thr Arg Pro Pro Ser Thr Pro Glu Gly Ile
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Ala Leu Ala Tyr Gly Ser Leu Leu Leu Met Ala Leu Leu Pro Ile Phe
 35 40 45

Phe Gly Ala Leu Arg Ser Val Arg Cys Ala Arg Gly Lys Asn Ala Ser
 50 55 60

Asp Met Pro Glu Thr Ile Thr Ser Arg Asp Ala Ala Arg Phe Pro Ile
 65 70 75 80

Ile Ala Ser Cys Thr Leu Leu Gly Leu Tyr Leu Phe Phe Lys Ile Phe
 85 90 95

Ser Gln Glu Tyr Ile Asn Leu Leu Leu Ser Met Tyr Phe Phe Val Leu
 100 105 110

Gly Ile Leu Ala Leu Ser His Thr Ile Ser Pro Phe Met Asn Lys Phe
 115 120 125

Phe Pro Ala Ser Phe Pro Asn Arg Gln Tyr Gln Leu Leu Phe Thr Gln
 130 135 140

Gly Ser Gly Glu Asn Lys Glu Glu Ile Ile Asn Tyr Glu Phe Asp Thr
 145 150 155 160

Lys Asp Leu Val Cys Leu Gly Leu Ser Ser Ile Val Gly Val Trp Tyr
 165 170 175

Leu Leu Arg Lys His Trp Ile Ala Asn Asn Leu Phe Gly Leu Ala Phe
 180 185 190

Ser Leu Asn Gly Val Glu Leu Leu His Leu Asn Asn Val Ser Thr Gly
 195 200 205

Cys Ile Leu Leu Gly Gly Leu Phe Ile Tyr Asp Val Phe Trp Val Phe
 210 215 220

Gly Thr Asn Val Met Val Thr Val Ala Lys Ser Phe Glu Ala Pro Ile
 225 230 235 240

Lys Leu Val Phe Pro Gln Asp Leu Leu Glu Lys Gly Leu Glu Ala Asn
 245 250 255

Asn Phe Ala Met Leu Gly Leu Gly Asp Val Val Ile Pro Gly Ile Phe
 260 265 270

Ile Ala Leu Leu Leu Arg Phe Asp Ile Ser Leu Lys Lys Asn Thr His
 275 280 285

Thr Tyr Phe Tyr Thr Ser Phe Ala Ala Tyr Ile Phe Gly Leu Gly Leu
 290 295 300

Thr Ile Phe Ile Met His Ile Phe Lys His Ala Gln Pro Ala Leu Leu
 305 310 315 320

Tyr Leu Val Pro Ala Cys Ile Gly Phe Pro Val Leu Val Ala Leu Ala
 325 330 335

Lys Gly Glu Val Thr Glu Met Phe Ser Tyr Glu Glu Ser Asn Pro Lys
 340 345 350

Asp Pro Ala Ala Val Thr Glu Ser Lys Glu Gly Thr Glu Ala Ser Ala
 355 360 365

Ser Lys Gly Leu Glu Lys Lys Glu Lys
 370 375

<210> 4
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 <212> PRT
 <213> Homo sapiens

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Gln Val Ser Thr Phe Leu Ile Ser Ile Leu Leu Ile Val Tyr Gly Ser
 20 25 30

Phe Arg Ser Leu Asn Met Asp Phe Glu Asn Gln Asp Lys Glu Lys Asp
 35 40 45

Ser Asn Ser Ser Ser Gly Ser Phe Asn Gly Asn Ser Thr Asn Asn Ser
 50 55 60

Ile Gln Thr Ile Asp Ser Thr Gln Ala Leu Phe Leu Pro Ile Gly Ala
 65 70 75 80

Ser Val Ser Leu Leu Val Met Phe Phe Phe Asp Ser Val Gln Val
 85 90 95

Val Phe Thr Ile Cys Thr Ala Val Leu Ala Thr Ile Ala Phe Ala Phe
 100 105 110

Leu Leu Leu Pro Met Cys Gln Tyr Leu Thr Arg Pro Cys Ser Pro Gln
 115 120 125

Asn Lys Ile Ser Phe Gly Cys Cys Gly Arg Phe Thr Ala Ala Glu Leu
 130 135 140

Leu Ser Phe Ser Leu Ser Val Met Leu Val Leu Ile Trp Val Leu Thr
 145 150 155 160

Gly His Trp Leu Leu Met Asp Ala Leu Ala Met Gly Leu Cys Val Ala
 165 170 175

Met Ile Ala Phe Val Arg Leu Pro Ser Leu Lys Val Ser Cys Leu Leu
 180 185 190

Leu Ser Gly Leu Leu Ile Tyr Asp Val Phe Trp Val Phe Phe Ser Ala
 195 200 205

Tyr Ile Phe Asn Ser Asn Val Met Val Lys Val Ala Thr Gln Pro Ala
 210 215 220

Asp Asn Pro Leu Asp Val Leu Ser Arg Lys Leu His Leu Gly Pro Asn
 225 230 235 240

Val Gly Arg Asp Val Pro Arg Leu Ser Leu Pro Gly Lys Leu Val Phe
 245 250 255

Pro Ser Ser Thr Gly Ser His Phe Ser Met Leu Gly Ile Gly Asp Ile
 260 265 270

Val Met Pro Gly Leu Leu Leu Cys Phe Val Leu Arg Tyr Asp Asn Tyr
 275 280 285

 Lys Lys Gln Ala Ser Gly Asp Ser Cys Gly Ala Pro Gly Pro Ala Asn
 290 295 300

 Ile Ser Gly Arg Met Gln Lys Val Ser Tyr Phe His Cys Thr Leu Ile
 305 310 315 320

 Gly Tyr Phe Val Gly Leu Leu Thr Ala Thr Val Ala Ser Arg Ile His
 325 330 335

 Arg Ala Ala Gln Pro Ala Leu Leu Tyr Leu Val Pro Phe Thr Leu Leu
 340 345 350

 Pro Leu Leu Thr Met Ala Tyr Leu Lys Gly Asp Leu Arg Arg Met Trp
 355 360 365

 Ser Glu Pro Phe His Ser Lys Ser Ser Ser Arg Phe Leu Glu Val
 370 375 380

<210> 5
 <211> 113
 <212> PRT
 <213> Mus musculus

<400> 5
 Val Leu Gly Phe Gly Asp Ile Ile Val Pro Gly Leu Leu Ile Ala Tyr
 1 5 10 15

 Cys Arg Arg Phe Asp Val Gln Thr Gly Ser Ser Ile Tyr Tyr Ile Ser
 20 25 30

 Ser Thr Ile Ala Tyr Ala Val Gly Met Ile Ile Thr Phe Val Val Leu
 35 40 45

 Met Val Met Lys Thr Gly Gln Pro Ala Leu Leu Tyr Leu Val Pro Cys
 50 55 60

 Thr Leu Ile Thr Val Ser Val Val Ala Trp Ser Arg Lys Glu Met Lys
 65 70 75 80

 Lys Phe Trp Lys Gly Ser Ser Tyr Gln Val Met Asp His Leu Asp Tyr
 85 90 95

 Ser Thr Asn Glu Glu Asn Pro Val Thr Thr Asp Glu Gln Ile Val Gln
 100 105 110

Gln

<210> 6
 <211> 378
 <212> PRT
 <213> Mus musculus

<400> 6

Met Asp Ser Ala Val Ser Asp Pro His Asn Gly Ser Ala Glu Ala Gly
 1 5 10 15

Thr Pro Ala Asn Gly Thr Thr Arg Pro Pro Ser Thr Pro Glu Gly Ile
 20 25 30

Ala Leu Ala Tyr Gly Ser Leu Leu Leu Met Ala Leu Leu Pro Ile Phe
 35 40 45

Phe Gly Ala Leu Pro Ser Val Arg Cys Ala Arg Gly Lys Ser Ser Ser
 50 55 60

Asp Met Pro Glu Thr Ile Thr Ser Arg Asp Ala Ala Arg Phe Pro Ile
 65 70 75 80

Ile Ala Ser Cys Thr Leu Leu Gly Leu Tyr Leu Phe Phe Lys Ile Phe
 85 90 95

Ser Gln Glu Tyr Ile Asn Leu Leu Leu Ser Met Tyr Phe Phe Val Leu
 100 105 110

Gly Ile Leu Ala Leu Ser His Thr Ile Ser Pro Phe Met Asn Lys Phe
 115 120 125

Phe Pro Ala Asn Phe Pro Asn Arg Gln Tyr Gln Leu Leu Phe Thr Gln
 130 135 140

Gly Ser Gly Glu Asn Lys Glu Glu Ile Ile Asn Tyr Glu Phe Asp Thr
 145 150 155 160

Lys Asp Leu Val Cys Leu Gly Leu Ser Ser Val Val Gly Val Trp Tyr
 165 170 175

Leu Leu Arg Lys His Trp Ile Ala Asn Asn Leu Phe Gly Leu Ala Phe
 180 185 190

Ser Leu Asn Gly Val Glu Leu Leu His Leu Asn Asn Val Ser Thr Gly
 195 200 205

Cys Ile Leu Leu Gly Leu Phe Ile Tyr Asp Ile Phe Trp Val Phe
 210 215 220

Gly Thr Asn Val Met Val Thr Val Ala Lys Ser Phe Glu Ala Pro Ile
 225 230 235 240

Lys Leu Val Phe Pro Gln Asp Leu Leu Glu Lys Gly Leu Glu Ala Asp
 245 250 255

Asn Phe Ala Met Leu Gly Leu Gly Asp Ile Val Ile Pro Gly Ile Phe
 260 265 270

Ile Ala Leu Leu Leu Arg Phe Asp Ile Ser Leu Lys Lys Asn Thr His
 275 280 285

Thr Tyr Phe Tyr Thr Ser Phe Ala Ala Tyr Ile Phe Gly Leu Gly Leu
 290 295 300

Thr Ile Phe Ile Met His Ile Phe Lys His Ala Gln Pro Ala Leu Leu
 305 310 315 320

Tyr Leu Val Pro Ala Cys Ile Gly Phe Pro Val Leu Val Ala Leu Ala
 325 330 335

Lys Gly Glu Val Ala Glu Met Phe Ser Tyr Glu Glu Ser Asn Pro Lys
 340 345 350

Asp Pro Ala Ala Val Thr Glu Ser Lys Glu Glu Ser Thr Glu Ala Ser
 355 360 365

Ala Ser Lys Arg Leu Glu Lys Lys Glu Lys
 370 375

<210> 7
<211> 257
<212> PRT
<213> Mus musculus

<400> 7
Gln Asn Lys Ile Ser Phe Gly Cys Cys Gly Arg Phe Thr Ala Ala Glu
 1 5 10 15

Leu Leu Ser Phe Tyr Leu Ser Val Met Leu Val Leu Ile Trp Val Leu
 20 25 30

Thr Gly His Trp Leu Leu Met Asp Ala Leu Ala Met Gly Leu Cys Val
 35 40 45

Ala Met Ile Ala Phe Val Arg Leu Pro Ser Leu Lys Val Ser Cys Leu
 50 55 60

Leu Leu Ser Gly Leu Leu Ile Tyr Asp Val Phe Trp Val Phe Phe Ser
 65 70 75 80

Ala Tyr Ile Phe Asn Ser Asn Val Met Val Lys Val Ala Thr Gln Pro
 85 90 95

Ala Asp Asn Pro Leu Asp Val Leu Ser Arg Lys Leu His Leu Gly Pro
 100 105 110

Asn Val Gly Arg Asp Val Pro Arg Leu Ser Leu Pro Gly Lys Leu Val
 115 120 125

Phe Pro Ser Ser Thr Gly Ser His Phe Ser Met Leu Gly Ile Gly Asp
 130 135 140

Ile Val Met Pro Gly Leu Leu Leu Cys Phe Val Leu Arg Tyr Asp Asn
 145 150 155 160

Tyr Lys Lys Gln Ala Ser Gly Asp Ser Cys Gly Ala Pro Gly Xaa Ala
 165 170 175

Asn Ile Ser Gly Arg Met Gln Lys Val Ser Tyr Phe His Cys Thr Leu
 180 185 190

Ile Gly Tyr Phe Val Gly Leu Leu Thr Ala Thr Val Ala Ser Arg Val
 195 200 205

His Arg Ala Ala Gln Pro Ala Leu Leu Tyr Leu Val Pro Phe Thr Leu
 210 215 220

Leu Pro Leu Leu Thr Met Ala Tyr Leu Lys Gly Asp Leu Arg Arg Met
 225 230 235 240

Trp Ser Glu Pro Phe His Ser Lys Ser Ser Ser Arg Phe Leu Glu
 245 250 255

Val

<210> 8
<211> 587
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 8
Met Asp Lys Tyr Leu Asn Ser Phe Val Asp His Leu Ser Glu Trp Ser
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Ser Arg Ala Phe Arg Asn Asn Ser Ser Ala Asn Gln Ser Ala Ser
20 25 30
Asn Lys Glu Leu Glu Gln Val Phe Glu Gln Ile Asn Ala Ile Val Glu
35 40 45
Asn His Asn Asn Lys Leu Thr Thr Ala Phe Asp Lys Ile Ser Tyr Arg
50 55 60
Val Ala His Lys Ile Thr His Leu Val Glu Ser His Ser Leu Val Phe
65 70 75 80
Asn Tyr Ala Thr Leu Val Leu Ile Ala Ser Ala Leu Val Val Ile Gly
85 90 95
Ser Phe Thr Ser Ile Ser Ser Ile Pro Phe Thr Ala Leu Pro Pro Thr
100 105 110
Arg Glu His Ser Leu Phe Asp Pro Thr Asp Phe Asp Val Asp His Asp
115 120 125
Cys His Val Ile Tyr Arg Glu Asn Asp Glu Asp Lys Lys Lys Lys Lys
130 135 140
Lys Ser Lys Arg Phe Phe Asp Met Met Asp Glu Lys His Ala Ile Ile
145 150 155 160
Leu Pro Leu Thr Ser Gly Cys Thr Leu Leu Ala Leu Tyr Phe Val Ile
165 170 175
Lys Lys Leu His Leu Asn Trp Leu Lys Tyr Val Val Lys Ile Leu Asn
180 185 190
Phe Asn Ile Thr Leu Leu Asn Ile Pro Ala Gly Thr Phe Val Tyr Ser
195 200 205
Tyr Phe Leu Asn Ser Leu Phe Arg Asn Leu Ser His Leu Ala Ser Trp
210 215 220
Asn Pro Leu Val Val Leu Pro Arg Tyr Arg Val Thr Ile Ala Asp Asp
225 230 235 240
Asn Glu Asp Leu Asn Lys Ile Gly Gly Phe Val Thr Asn Leu Asn Tyr
245 250 255
Lys Asp Gly Leu Thr Asn Ser Val Val His Lys Lys Thr Leu Asp Glu
260 265 270
Ile Glu Lys Asp His Trp Met Lys His Phe Tyr Arg Arg Glu Leu Val
275 280 285
Glu Pro Lys Asp Ile Lys Ser Lys Arg Gln Ile Ser Asn Met Tyr Leu
290 295 300

Asn Ser Ala Leu Ile Val Ser Phe Val Leu Ser Ile Val Ser Thr Val
 305 310 315 320
 Tyr Phe Tyr Leu Ser Pro Asn Asp Trp Leu Ile Ser Asn Ala Val Ser
 325 330 335
 Met Asn Met Ala Ile Trp Ser Ile Ala Gln Leu Lys Leu Lys Asn Leu
 340 345 350
 Lys Ser Gly Ala Leu Ile Leu Ile Ala Leu Phe Phe Tyr Asp Ile Cys
 355 360 365
 Phe Val Phe Gly Thr Asp Val Met Val Thr Val Ala Thr Asn Leu Asp
 370 375 380
 Ile Pro Val Lys Leu Ser Leu Pro Val Lys Phe Asn Thr Ala Gln Asn
 385 390 395 400
 Asn Phe Asn Phe Ser Ile Leu Gly Leu Gly Asp Ile Ala Leu Pro Gly
 405 410 415
 Met Phe Ile Ala Met Cys Tyr Lys Tyr Asp Ile Trp Lys Trp His Leu
 420 425 430
 Asp His Asp Asp Thr Glu Phe His Phe Leu Asn Trp Ser Tyr Val Gly
 435 440 445
 Lys Tyr Phe Ile Thr Ala Met Val Ser Tyr Val Ala Ser Leu Val Ser
 450 455 460
 Ala Met Val Ser Leu Ser Ile Phe Asn Thr Ala Gln Pro Ala Leu Leu
 465 470 475 480
 Tyr Ile Val Pro Ser Leu Leu Ile Ser Thr Ile Leu Val Ala Cys Trp
 485 490 495
 Asn Lys Asp Phe Lys Gln Phe Trp Asn Phe Gln Tyr Asp Thr Ile Glu
 500 505 510
 Val Asp Lys Ser Leu Lys Ala Ile Glu Lys Lys Glu Asn Ser Ile
 515 520 525
 Thr Tyr Ser Thr Phe Ile Leu Ser Glu Tyr Tyr Asn Asp Ala Asp Lys
 530 535 540
 Tyr Ala Leu Leu Gly Asp Asp Val Asn Glu Asn Phe Asp Asp Asp Glu
 545 550 555 560
 Glu Phe Val Gln Glu Glu Asp Leu Ser Asp Ser Ser Glu Glu Glu Leu
 565 570 575
 Ser Glu Glu Asp Leu Leu Asp Asp Glu Ser Ser
 580 585

<210> 9
 <211> 1776
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<400> 9
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gcccaggtgg cctgtgagta cggcatggtg cacgtggct cccaggccgg gggccccgaa 120
 ggcaaagact actgcacccct ctacaacccg cagtggccca atcttccgca cgaccctcagc 180
 aaggcatctt tcctgcagct ggcgaactgg acggcctccc tgctctgctc cgcagccgac 240
 ctccccgccc gtggcttcag caaccagatc ccgctggtg cgcgaaaaa ctgcacccctc 300
 tatgagaaag tgaggctggc ccagggcagc ggagcacgac ggctgctcat cgtcagcagg 360
 gagaggctgg tccccccggg gggtaataag acgcagtatg atgagatgg cattcccg 420
 gcccgtctca gctacaaaga catgctggac atcttcacgc gtttcggccg cacggtgagg 480
 gcggcgctgt atgcgcctaa ggagccggc ctggactaca acatggctcat catcttcatc 540
 atggctgtgg gcaccgtcgc catcggccgc tactggccg ggagtcggga cgtaaagaaa 600
 aggtacatga agcacaagcg cgacgatggg cccgagaagc aggaggacga ggcgggtggac 660
 gtgacgcccgg tgatgacctg cgtgtttgtg gtatgtgct gctccatgct ggtgctgctc 720
 tactacttct acgacccctc cgtgtacgtg gtcacggga tcttctgcct ggcctccgccc 780
 accggcctct acagctgcct ggcgcctgt gtgcggccgc tgcccttcgg caagtgcagg 840
 atccccaaaca acagcctgcc ctacttccac aagcggccgc aggccctat gctgctcctg 900
 gcgccttct gcgtggccgt cagcgtggtg tggggcgtct tccgcaacga ggaccagtgg 960
 gcctgggtcc tccaggatgc cctggccatc gccttctgcc tctacatgct gaagaccatc 1020
 cgtctgccc cttcaaggc ctgcacgctg ctgctgctgg tgctgttcct ctacgacatc 1080
 ttcttcgtgt tcatcacgccc cttcctgacc aagagtggga gcagcatcat ggtggaggtg 1140
 gccactggc cctcggactc agccacccgt gagaagctgc ccatggcttct gaaggtgccc 1200
 aggctgaact cctcacctct ggcctgtgt gaccggccct tctccctctt ggtttcgg 1260
 gacatttgg tgccagggct gctggggcc tactgccaca ggttgcacat ccaggtacag 1320
 tcctccaggg tatacttcgt ggcctgcacc atcgcctatg gcgttggcct ctttgtaca 1380
 ttcgtggcac tggccctgat gcagcgtggc cagccgctc tcctctaccc ggtggccctgc 1440
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 ggcagcggct ttgcgaaagt cctacccca tctccgtggg ccccagcacc agccgacggc 1560
 ccgcagccctc ccaaagactc tgccacgcca ctctcccccgc agccgcccag cgaagaacca 1620
 gccacatccc cctggcctgc tgagcagtcc ccaaaaatcac gcacgtccga ggagatgggg 1680
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<213> Homo sapiens
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 <212> DNA
 <213> Mus musculus

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 <212> DNA
 <213> Mus musculus

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gccgagatgt tcagttatgaa ggagtccaaac cctaaagatc cagcagccgt gactgaatcc 1080
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<211> 771
<212> DNA
<213> Mus musculus

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 <211> 1560
 <212> DNA
 <213> Homo sapiens

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<210> 18
<211> 520
<212> PRT
<213> *Homo sapiens*

<400> 18
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Ser Gly Asn Gly Thr Thr Lys Asp Tyr Cys Met Leu Tyr Asn Pro Tyr

| | | |
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| 35 | 40 | 45 |
| Trp Thr Ala Leu Pro Ser Thr Leu Glu Asn Ala Thr Ser Ile Ser Leu | | |
| 50 | 55 | 60 |
| Met Asn Leu Thr Ser Thr Pro Leu Cys Asn Leu Ser Asp Ile Pro Pro | | |
| 65 | 70 | 75 |
| 80 | | |
| Val Gly Ile Lys Ser Lys Ala Val Val Val Pro Trp Gly Ser Cys His | | |
| 85 | 90 | 95 |
| Phe Leu Glu Lys Ala Arg Ile Ala Gln Lys Gly Gly Ala Glu Ala Met | | |
| 100 | 105 | 110 |
| Leu Val Val Asn Asn Ser Val Leu Phe Pro Pro Ser Gly Asn Arg Ser | | |
| 115 | 120 | 125 |
| Glu Phe Pro Asp Val Lys Ile Leu Ile Ala Phe Ile Ser Tyr Lys Asp | | |
| 130 | 135 | 140 |
| Phe Arg Asp Met Asn Gln Thr Leu Gly Asp Asn Ile Thr Val Lys Met | | |
| 145 | 150 | 155 |
| 160 | | |
| Tyr Ser Pro Ser Trp Pro Asn Tyr Asp Tyr Thr Met Val Gly Ile Phe | | |
| 165 | 170 | 175 |
| Gly Ile Ala Val Phe Thr Gly Ala Leu Ser Gly Tyr Trp Ser Gly Leu | | |
| 180 | 185 | 190 |
| Val Glu Leu Glu Asn Leu Lys Ala Val Thr Thr Glu Asp Arg Glu Met | | |
| 195 | 200 | 205 |
| Arg Lys Lys Lys Glu Glu Tyr Leu Thr Phe Ser Pro Leu Thr Val Val | | |
| 210 | 215 | 220 |
| Ile Phe Val Val Ile Cys Cys Val Met Met Val Leu Leu Tyr Phe Phe | | |
| 225 | 230 | 235 |
| 240 | | |
| Tyr Lys Trp Leu Val Tyr Val Met Ile Ala Ile Phe Cys Ile Ala Ser | | |
| 245 | 250 | 255 |
| Ala Met Ser Leu Tyr Asn Cys Leu Ala Ala Leu Ile His Lys Ile Pro | | |
| 260 | 265 | 270 |
| Tyr Gly Gln Cys Thr Ile Ala Cys Arg Gly Lys Asn Met Glu Val Arg | | |
| 275 | 280 | 285 |
| Leu Ile Phe Leu Ser Gly Leu Cys Ile Ala Val Ala Val Val Trp Ala | | |
| 290 | 295 | 300 |
| Val Phe Arg Asn Glu Asp Arg Trp Ala Trp Ile Leu Gln Asp Ile Leu | | |
| 305 | 310 | 315 |
| 320 | | |
| Gly Ile Ala Phe Cys Leu Asn Leu Ile Lys Thr Leu Lys Leu Pro Asn | | |
| 325 | 330 | 335 |
| Phe Lys Ser Cys Val Ile Leu Leu Gly Leu Leu Leu Tyr Asp Val | | |
| 340 | 345 | 350 |
| Phe Phe Val Phe Ile Thr Pro Phe Ile Thr Lys Asn Gly Glu Ser Ile | | |
| 355 | 360 | 365 |
| Met Val Glu Leu Ala Ala Gly Pro Phe Gly Asn Asn Glu Lys Leu Pro | | |
| 370 | 375 | 380 |

Val Val Ile Arg Val Pro Lys Leu Ile Tyr Phe Ser Val Met Ser Val
 385 390 395 400
 Cys Leu Met Pro Val Ser Ile Leu Gly Phe Gly Asp Ile Ile Val Pro
 405 410 415
 Gly Leu Leu Ile Ala Tyr Cys Arg Arg Phe Asp Val Gln Thr Gly Ser
 420 425 430
 Ser Tyr Ile Tyr Tyr Val Ser Ser Thr Val Ala Tyr Ala Ile Gly Met
 435 440 445
 Ile Leu Thr Phe Val Val Leu Val Leu Met Lys Lys Gly Gln Pro Ala
 450 455 460
 Leu Leu Tyr Leu Val Pro Cys Thr Leu Ile Thr Ala Ser Val Val Ala
 465 470 475 480
 Trp Arg Arg Lys Glu Met Lys Lys Phe Trp Lys Gly Asn Ser Tyr Gln
 485 490 495
 Met Met Asp His Leu Asp Cys Ala Thr Asn Glu Glu Asn Pro Val Ile
 500 505 510
 Ser Gly Glu Gln Ile Val Gln Gln
 515 520

<210> 19
 <211> 684
 <212> PRT
 <213> Homo sapiens

<400> 19
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 35 40 45
 Leu Pro Arg Asp Leu His His Ala Pro Leu Leu Pro Leu Tyr Asp Gly
 50 55 60
 Thr Lys Ala Pro Trp Cys Pro Gly Glu Asp Ser Pro His Gln Ala Gln
 65 70 75 80
 Leu Arg Ser Pro Ser Gln Arg Pro Leu Arg Gln Thr Thr Ala Met Val
 85 90 95
 Met Arg Gly Asn Cys Ser Phe His Thr Lys Gly Trp Leu Ala Gln Gly
 100 105 110
 Gln Gly Ala His Gly Leu Leu Ile Val Ser Arg Val Ser Asp Gln Gln
 115 120 125
 Cys Ser Asp Thr Thr Leu Ala Pro Gln Asp Pro Arg Gln Pro Leu Ala
 130 135 140
 Asp Leu Thr Ile Pro Val Ala Met Leu His Tyr Ala Asp Met Leu Asp
 145 150 155 160

Ile Leu Ser His Thr Arg Gly Glu Ala Val Val Arg Val Ala Met Tyr
 165 170 175

Ala Pro Pro Glu Pro Ile Ile Asp Tyr Asn Met Leu Val Ile Phe Ile
 180 185 190

Leu Ala Val Gly Thr Val Ala Ala Gly Gly Tyr Trp Ala Gly Leu Thr
 195 200 205

Glu Ala Asn Arg Leu Gln Arg Arg Arg Ala Arg Arg Gly Gly Ser
 210 215 220

Gly Gly His His Gln Leu Gln Glu Ala Ala Ala Glu Gly Ala Gln
 225 230 235 240

Lys Glu Asp Asn Glu Asp Ile Pro Val Asp Phe Thr Pro Ala Met Thr
 245 250 255

Gly Val Val Val Thr Leu Ser Cys Ser Leu Met Leu Leu Leu Tyr Phe
 260 265 270

Phe Tyr Asp His Phe Val Tyr Val Thr Ile Gly Ile Phe Gly Leu Gly
 275 280 285

Ala Gly Ile Gly Leu Tyr Ser Cys Leu Ser Pro Leu Val Cys His Leu
 290 295 300

Ser Leu Arg Gln Tyr Gln Arg Pro Pro His Ser Leu Trp Ala Ser Leu
 305 310 315 320

Pro Leu Pro Leu Leu Leu Ala Ser Leu Cys Ala Thr Val Ile Ile
 325 330 335

Phe Trp Val Ala Tyr Arg Asn Glu Asp Arg Trp Ala Trp Leu Leu Gln
 340 345 350

Asp Thr Leu Gly Ile Ser Tyr Cys Leu Phe Val Leu His Arg Val Arg
 355 360 365

Leu Pro Thr Leu Lys Asn Cys Ser Ser Phe Leu Leu Ala Leu Leu Ala
 370 375 380

Phe Asp Val Phe Phe Val Phe Val Thr Pro Phe Phe Thr Lys Thr Gly
 385 390 395 400

Glu Ser Ile Met Ala Gln Val Ala Leu Gly Pro Ala Glu Ser Ser Ser
 405 410 415

His Glu Arg Leu Pro Met Val Leu Lys Val Pro Arg Leu Arg Val Ser
 420 425 430

Ala Leu Thr Leu Cys Ser Gln Pro Phe Ser Ile Leu Gly Phe Gly Asp
 435 440 445

Ile Val Val Pro Gly Phe Leu Val Ala Tyr Cys Cys Arg Phe Asp Val
 450 455 460

Gln Val Cys Ser Arg Gln Ile Tyr Phe Val Ala Cys Thr Val Ala Tyr
 465 470 475 480

Ala Val Gly Leu Leu Val Thr Phe Met Ala Met Val Leu Met Gln Met
 485 490 495

Gly Gln Pro Ala Leu Leu Tyr Leu Val Ser Ser Thr Leu Leu Thr Ser
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Leu Ala Val Ala Ala Cys Arg Gln Glu Leu Ser Leu Phe Trp Thr Gly
 515 520 525
 Gln Gly Arg Ala Lys Met Cys Gly Leu Gly Cys Ala Pro Ser Ala Gly
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 Ser Arg Gln Lys Gln Glu Gly Ala Ala Asp Ala His Thr Ala Ser Thr
 545 550 555 560
 Leu Glu Arg Gly Thr Ser Arg Gly Ala Gly Asp Leu Asp Ser Asn Pro
 565 570 575
 Gly Glu Asp Thr Thr Glu Ile Val Thr Ile Ser Glu Asn Glu Ala Thr
 580 585 590
 Asn Pro Glu Asp Arg Ser Asp Ser Ser Glu Gly Trp Ser Asp Ala His
 595 600 605
 Leu Asp Pro Asn Glu Leu Pro Phe Ile Pro Pro Gly Ala Ser Glu Glu
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